in hospital cases, but in private cases its use was often essential and extremely beneficial in neurotic subjects. If used with moderation, it did not interfere with labour in the first or second stage, and in the third stage it might save rupture of the perineum. In hospital cases, again, ergot was unnecessary, but in weakly private patients it was often of service. He did not agree with Dr. Boxall that the mortality of cases treated out of hospital was due to deficient training of students of midwifery. The statistics of cases attended by students—for example, at Guy's Hospital—was very low. The excessive mortality was due rather to the insanitary surroundings of poor patients, the examination of patients by ignorant, unskilled, "so-called" midwives, who infected cases before they were seen by a doctor at all. Dr. LEWERS maintained that it was advisable to dispense with vaginal examination as far as possible. Absolute disinfection of the hands was impossible, and these were therefore a source of danger. In cases where vaginal examination was necessary, he would advocate the using of sterilized rubber gloves. Some cases of sepsis might be caused by the introduction of pathogenic organisms from the vulva. The PRESIDENT held that a large proportion of cases of septic poisoning were due to infection by unskilled and ignorant midwives. He would say, "Mark well your hands; therein the danger lies."

SOUTH-WEST LONDON MEDICAL SOCIETY.—At a meeting on December 12th, 1906, Dr. MACKINTOSH, President, in the chair, Dr. MILNE BRAMWELL, the lecturer, gave an account of his early experiences with *Hypnotism*, in which he had made use of hypnotic sleep as an anaesthetic in surgical operations as well as for the conveyance of therapeutic suggestions. More modern investigations had shown that suggestion could be carried out successfully without the subject being thrown into a state of sleep, and that loss of consciousness was not a necessary part of treatment; hypnotism as an anaesthetic was very uncertain in its action. As for methods of conveying suggestions, he had no idea why systematized suggestion as practised by himself should be successful when identical suggestions by eminent physicians had failed in their object. He referred in particular to cases of dipsomania, *grande hystérie*, and obsessions as cases in point. In answer to a number of questions addressed to him at the close of the lecture, Dr. Bramwell stated that it was possible to teach any one how to hypnotize, but the power acquired depended on the individual and experience; in no case had any accident occurred in his practice, and he was of opinion that no suggestion to commit a criminal action could be enforced on a subject owing to the "moral hyperaesthesia" induced by hypnotism. During the whole of his experience he had never come across any evidence of the possibility of thought transference.

MANCHESTER CLINICAL SOCIETY.—At a meeting of this Society, held on December 18th, 1906, Dr. LE PAGE, President, in the chair, Mr. E. STANMORE BISHOP brought forward three cases of partial gastrectomy for carcinoma, and showed one patient, his first two having died shortly after operation. Of these, one died in consequence of leakage at "Billroth's fatal angle"; a subphrenic abscess formed, and death followed. In the second, the growth had involved the mesocolon (transverse), necessitating the ablation of 4 in. of the transverse colon, with so much resultant shock that the patient succumbed. The patient shown was operated upon on November 5th, 1906, and had made a good recovery; she had increased in weight, was free from pain and vomiting, symptoms which before operation had been marked and increasing. A radiograph by Messrs. Bythell and Barclay was shown, in which the outlines of the truncated stomach were well shown, being defined by bismuth. It was noticeable that although the duodenum had not been rendered movable, the stomach, united to it, was not drawn over to the right, but lay in the left hypochondrium, having apparently drawn the duodenum over to that side.

THE THERAPEUTICAL SOCIETY.—In an account of the proceedings of this society on December 18th, published in the BRITISH MEDICAL JOURNAL for January 5th, the words "in diphtheria" were accidentally inserted in the last sentence, which should read, "There was general agreement that antistreptococcic serum was as efficacious given per rectum as hypodermically."

REVIEWS.

HELMHOLTZ.

"IN the historical record of science," says Lord Kelvin in his preface to the life of Helmholtz,[1] "the name of Helmholtz stands unique in grandeur as a master and leader in mathematics, in biology, and in physics." His career was unparalleled in the history of professions. Trained as a surgeon of the Prussian army, he was successively teacher of anatomy in the Academy of Arts, Berlin—a post he held for one year; Professor of Pathology and Physiology at Königsberg for six years; Professor of Anatomy in Bonn for three years; Professor of Physiology in Heidelberg for thirteen years; Professor of Physics in Berlin for twenty years; and finally director of the Physikalisch-Technische Reichsanstalt in Charlottenburg. Supported by a donation of half a million marks and the gift of a site from his friend, Werner von Siemens, and ultimately aided by the State, Helmholtz created the Reichsanstalt, "an institute which," Lord Kelvin says, "has conferred already inestimable benefits on the whole world—an example tardily and imperfectly followed by Great Britain and other countries, which are only now beginning to learn that scientific research contributes to the welfare of the whole people."

There are very few men who could fill equally well chairs of anatomy, physiology, and physics. Helmholtz could have filled as easily a chair of mathematics or astronomy. For the first seven years of his life he was an ailing child, confined to his room for long periods, and often to his bed. He occupied his time especially with wooden blocks, and when sent to school at the age of seven astonished his masters in geometry by knowing (thanks to his toy blocks) all the facts they expected him to learn. His father's cousin must have had a true insight into the boy's nature when she wrote:

> You must not be distressed because he has learned little so far. I am sure it will be for good not to begin before his eighth year. Alexander von Humboldt learned nothing before he was eight, and now the king has made him President of the Academy of Sciences, with the title of Excellency, and a big yearly stipend—and this is what I predict for your son.

Helmholtz's father was a professor at the Potsdam Gymnasium, a man weighed down by his sense of duty and scrupulous conscientiousness. His influence was the most important factor in the boy's intellectual development. "He strove to arouse his children to a sense of the ideal in poetry, art, and music, and at the same time to make them good patriots." His mother was "profoundly emotional and of quick intellect. Her homely judgements were clear and luminous, and she seemed to penetrate obscure points by intuition."

The straitened circumstances under which the Helmholtz family were brought up is shown by the astonishment of the elder Helmholtz at his son receiving so early in life a salary of £120 as professor at Königsberg, a salary greater than any he had himself attained in all his years of service. The father and son at first came into a state of intellectual variance, for while the father admitted only the deductive method, and held inductive reasoning to be inimical to science, Helmholtz from the beginning concentrated himself upon experimental evidence and held inductive reasoning to be the salvation of science. "The father missed no opportunity in their daily intercourse of bringing his general philosophical convictions and metaphysical conceptions to bear upon the young man, doing all he could to shake him in his methods of thought and experiment."

The attainment by Helmholtz, at the age of 28, of a professorship with the princely salary of £120, however, revolutionized the ideas of the old philosopher, and from that time onward "he became keenly desirous of becoming acquainted with all his son's work, and whenever possible, of taking part in it."

We get an interesting and pathetic picture of the poor over-conscientious philosopher writing to the Prussian Government to say he wished to participate in a pension scheme for widows and receiving the following rebuke:

[1] *Hermann von Helmholtz.* By Leo Koenigsberger. Translated by Frances A. Welby. Preface by Lord Kelvin. Oxford: Clarendon Press. 1906. (Demy 8vo, pp. 440. 16s.)

Your memorial is incomplete in its contents and most reprehensible in form. . . . You ought to know or your sense of propriety should have informed you, that an official statement or memorial to the Board should not be drawn up upon a single page, but should occupy an entire sheet. The leaf you have handed in testifies to the greatest inattention and neglect of the respect due to the Board. . . . We recommend you to observe the claims of propriety and duty.

Young Helmholtz at school was at the outset hampered by the want of a good memory for disconnected facts; "this showed itself," he says fifty years later, "in the difficulty which I still distinctly remember of distinguishing between right and left; later on, when I got to languages in my school work, it was harder for me to learn the vocabularies, grammatical irregularities, and idiomatical expressions, than for the others. . . . I found no difficulty in learning the poems of the great masters, but the more laboured verses of second-rate poets were far less easy." For all big men, we fancy, it has been equally hard to learn as boys the rubbish hitherto largely taught in schools and called education.

While his class were reading Cicero or Virgil, which did not interest him, young Helmholtz would often be engaged beneath the table in working out the passage of rays of light through the telescope, or in learning some of the optical theorems that served him in good stead later on in the construction of the ophthalmoscope. With no other appliances than some spectacle glasses and a little botanical lens belonging to his father, he and a friend contrived to make up some optical instruments, modifying the construction again and again until they hit off some practical arrangement. The necessary knowledge had to be acquired from a few antiquated textbooks on physics and chemistry possessed by his father, to which the discoveries of Lavoisier and Humphry Davy had not yet penetrated. This experience served him in good stead in after-life, for so poor was the provision for the chairs he held at first (£15 a year was allowed him at Königsberg for laboratory expenses) that he used to construct his bits of apparatus for optical experiments from his wife's reels and his children's bricks, with ends of wax and bits of string. When he invented the ophthalmoscope he constructed his instrument out of spectacle glasses and cover glasses, and after about eight days' work, "had the great joy of being the first to see a living human retina." In this practice he found a fellow in Faraday, of whom he writes after his first visit: "He is as simple, charming, and unaffected as a child. I have never seen a man with such winning ways. He was, moreover, extremely kind, and showed me all there was to see. That, indeed, was little enough, for a few wires, and some old bits of wood and iron seem to serve him for the greatest discoveries." When Helmholtz perfected his myograph, we read that "even du Bois did not venture, on account of its high price, to suggest to Joh. Müller to purchase one for the Anatomical Institute." Now we should find half a score to a score at the disposal of the students in every laboratory in this country.

At 15, Helmholtz was described by his fellow students at the Gymnasium as reserved and self-contained, showing invariable kindness to those weaker than himself. At 17, he entered the Royal Frederick Wilhelm Institute to be trained as an army surgeon. His father writes to him: "Be good, and devote yourself seriously and wholeheartedly to your profession, to science, and to virtue." His mother writes: "Write to me of your classes, your chilblains, your tempers, your discontent, and the good things that happen to you." To his parents Helmholtz wrote:

"The revision classes, including two in osteology, have all started, and we often have to sit through the evening learning one muscle after another till our heads split. It is easier to me than to the others, but even I have had an attack of chagrin against God and the world, such as every one here is subject to occasionally." (How many thousands of anatomy students have felt this!) "But it generally goes off in a few hours, and our youthful ardour reasserts itself. Any spare time I have during the day is devoted to music. . . . I play sonatas of Mozart and Beethoven. . . . In the evenings I have been reading Goethe and Byron, and sometimes for a change the integral calculus."

This was the programme of work at the Academy. In the winter session forty-eight lectures a week—six on chemistry, six on general anatomy, four on splanchnology, three on osteology, three on the anatomy of the sense organs, four on physics, two on general medicine, two on logic, three on history, two on Latin, one on French, and twelve hours of revision classes. In the summer term there were forty-two lectures a week—six on botany, six on natural history, six on physiology, six on chemistry, six on zoochemistry, three on history, two on Latin, one on French, and ten revision classes.

We talk of our medical students being over-lectured, but they do not have to face a list like this. Link, the lecturer on natural history, suffered from superabundance of intellect—"after two months' lectures he is still at the philosophical introduction—good heavens!" The examination in anatomy included a full description of the tissues in one of the body cavities before all the other students. "The examiners, Müller and Gurlt, sat there. They yawned, and looked horribly bored, and were only too pleased if the candidate omitted something."

Johannes Müller was a man of noble character and a great teacher. Brücke and du Bois Reymond were fellow students, two years senior to Helmholtz. "Whoever," he says, "comes into contact with men of the first rank has an altered scale of values in life." It was with these men that he learnt to conceive that: "The man who only works on as he was taught by his master in bygone days, and merely cares to earn the means of his subsistence or pleasure, will be crushed by the mechanical side of his work. But any one who works from pleasure in the thing, and tries to help the subject forward, will be ennobled by his work, let it be what it may."

In his examination thesis Helmholtz was able to publish an important discovery in demonstrating the origin of nerve fibres from the ganglion cells. The latter had been discovered some ten years before by Ehrenberg. He followed this up by papers on animal heat, and then published his famous conception of the conservation of energy, and received by the agency of Humboldt the post of teacher of anatomy at the Academy of Arts at the noble salary of £60! His trial lecture, on the relation of anatomy to art, is an admirable piece of work, and will repay reading. He had fully gripped the true view that the true artist does not copy, but gives the spirit of the world around him, the material of his art becoming the direct vehicle of his ideas. Anatomy can only sharpen his perception of what is essential.

Appointed to the Chair of Physiology at Königsberg at a salary of £120, Helmholtz married, and writes:

"As soon as we had put our house in order everything was very comfortable and we were able to enjoy the best part of our life without let or hindrance."

His young wife gave him valuable assistance in his work as well as in simple economy of the home, as evidenced by the existence of long series of galvanometer readings in her handwriting.

The Professor of Pharmacology at Königsberg gave Helmholtz up as hopeless for regarding experiment as the true basis of science, while a physiological colleague invited to see some experiments on visual images by a physicist, replied that a physiologist had nothing to do with experiments, though they might be well enough for the physicist.

At Königsberg Helmholtz measured the rate of conduction of the nerve impulse, a measurement which Müller had declared six years before could never be attained. "The whale," he says, "probably feels a wound near its tail in about one second and requires another second to send back orders to the tail to defend itself." As to the cause of Müller's mistaken opinion Helmholtz wrote:

> The reason why the time occupied by this propagation seems to us so infinitesimal lies in the fact that we are unable to perceive more quickly than our nervous system can act, and thus the intervals required for its operations appear to us imperceptibly small.
>
> Astronomers vary in their estimation of the moment at which a star crosses the web of their telescopes by more than a whole second, while the estimates of any individual taken by himself agree within one-tenth of a second if frequently repeated. Still more surprising is the difficulty of determining whether the beats of two gently-ticking watches coincide or fall between each other if held to either ear; while nothing is easier than the same determination if both are held to the same ear. I picture the matter to myself in this way: two perceptions of different organs can only be estimated, as regards their time relations, when there is a sufficient interval between to reflect, "now you have perceived one, but not as yet the other." Our thought is not so rapid as we usually

believe, as I have proved from my experiment of taking an electric shock at any point on my skin and then trying to move my hand as quickly as might be.

We have quoted more than enough to show the interesting nature of Professor KOENIGSBERGER'S account of this great man. The rest of Helmholtz's scientific achievements, his great work on vision and audition, his relation to the famous work of his pupil Hertz, and as a forerunner to the great discoveries of wireless telegraphy, radio-activity, etc., will all be found in this book, for which we owe a debt of gratitude to Professor Koenigsberger and to Miss WELBY for her careful translation. To the ordinary reader, and even to the scientist, much of the scientific part of the book will be difficult, owing to the width and depth of the problems dealt with. We can comfort ourselves with the remark of Kirchoff, the famous discoverer of spectrum analysis, that there were many things in Helmholtz's writings he could not understand.

TEXTBOOKS FOR MIDWIVES.

THIS book, Dr. H. R. ANDREWS'S *Midwifery for Nurses*,[2] consists of the lectures given by the author to the pupil midwives at the London Hospital. These pupil midwives are to be congratulated on having so competent a teacher. It is written in a clear and easy style, and it is hardly necessary to say that the information is accurate. The author has erred on the side of giving too much information rather than too little. Some will think, for instance, that it is not a nurse's duty to treat chorea in pregnancy. We observe at page 198, in advising as to inversion of the uterus, the author—rightly, we think—tells the nurse that if a doctor cannot be fetched within a few minutes, she should herself try to press back the inverted uterus. He tells her she should make pressure above the pubes, "to prevent the uterus from being torn away from the vagina." He does not explain that the resistance to replacement comes from the contracted os internum, and that the best service the hand on the abdomen can render is to stretch open the contracted os internum. At page 230 the author expresses a definite opinion on a point about which there may be difference of view. He says:

> I think a nurse ought not to perform version in England. If she intends to practise midwifery in some foreign country, where doctors are few and far between, she may obtain special instruction with the phantom and fetus, and learn how to turn, when to turn, and when not to turn. The doctrine that it is better for a patient to run the risk of dying of haemorrhage than to have version performed by a nurse sounds a hard one, but the ordinary training of a nurse does not develop sufficient manipulative skill for her to perform version with safety, and unless she were given much more training than is at present considered necessary she would be very likely to do her patient grievous bodily harm.

With this, as applied to version in placenta praevia, or to version early in labour, we entirely agree. But we think it may reasonably be said that if a nurse when called to a case finds the membranes unruptured, the os uteri fully dilated, the child lying transversely and freely movable, she does better if she takes hold of a foot and delivers than if she sends for a doctor and runs the risk that the membranes may rupture, the liquor amnii escape, and the uterus contract round the child before he comes. In such cases there is hardly any risk in version, the risk being to the child in extraction, and extraction in breech cases is recognized as part of a midwife's duty. We observe that the author recommends a douche of tr. iodi ℥j ad Oj, but he does not mention that such a solution must be used immediately after it has been made, as the iodine rapidly evaporates. The book is one of the best of its kind.

The volume entitled *Lectures on Midwifery for Midwives*[3] has been given to the world, Dr. CALDER tells us, to gratify the wish of pupils who wished his lectures published "just in the words they were delivered to the class." The consequence is that the style is marked by the diffuseness and occasional repetition which characterize oral teaching. These very features may to the minds of many be attractive, they may excite interest and help remembrance. The author is excellent on the great question of antiseptics, as the most important thing in a midwife is that she shall be perfect in her antiseptic methods; this chapter alone stamps the book as a good one. It is full in detail, orderly, and emphatic. The author very correctly points out the difference between uterine exhaustion—often called secondary uterine inertia—and toxic contraction of the uterus. They are, he says, "alike in this, that labour stops"; but in the former "without any danger further than is occasioned by the worry, anxiety, and probable disappointment the mother may suffer from," and that "after a sleep labour will return and the child will be delivered." But in the next page he says that "in case of inertia, as we find the pains diminishing and the intervals increasing assistance must be summoned and forceps applied, and the patient relieved before the uterus is so exhausted that no pains are left to contract it and prevent *post-partum* haemorrhage when the child is born" (p. 198). We are inclined to think the practice hinted at in the preceding page is better: to let the patient sleep and then be naturally delivered; but this is a question for the doctor, not the midwife. At p. 194 the author gives as a cause of *post-partum* haemorrhage mismanagement of the second stage of labour in "allowing" the child to emerge suddenly, the uterus not having time to follow it down and become retracted. The word "allowing" here is surely out of place. The child will not be spontaneously expelled except by the contraction of the uterus. It can only pass into the world more quickly than the uterus can follow it when it is forcibly dragged out.

Dr. COMYNS BERKELEY'S *Handbook for Midwives and Maternity Nurse*[4] contains the usual elementary information about midwifery, but differs from most of its class and size in that it gives rather more information about the pathology of pregnancy and the puerperium, the infant, antiseptics, and sanitation. The author is cautious in his use of antiseptics. Lysol for injection he recommends in a 1 in 100 solution, mercury biniodide 1 in 5,000. There are those who would use stronger solutions. There is one point we feel constrained to touch upon, because we think both that it is important and that the author gives a wrong impression. Ophthalmia neonatorum, he tells the reader, is due to gonorrhoea in the mother, dirt due to careless nursing, and the use of too strong an antiseptic for the eyes at birth. "Careless nursing" is a little vague; we think the author would have done better if he had explained that it means in this connexion the indirect transmission of gonorrhoeal infection. This is a trifle. What we feel obliged to object to is the third cause assigned for ophthalmia. "Too strong antiseptics," we presume, means Credé's preventive measure of dropping one drop of a 2 per cent. solution of silver nitrate into the eye. It is not the fact that this produces ophthalmia, and we know of no antiseptic the use of which has been recommended that will produce ophthalmia. Crédé's silver nitrate solution produces a little transitory conjunctivitis that lasts a day or two and always gets well—nothing in the least like ophthalmia. It is a pity to deter persons from using Credé's discovery, for it has not yet failed when put in practice. Mr. Sydney Stephenson, in his comprehensive paper (*Obstetrical Trans.*, 1903) on the subject, shows that the only thing that approaches it in efficacy is a 1 per cent. solution of corrosive sublimate. The 1 in 2,000 mercury solution recommended in this work is too weak to be relied upon. The choice is, we think, between doing nothing, except in cases where gonorrhoea is suspected, and the routine use of Credé's method. The book is clearly written and freely illustrated. When we find statements from which we differ, we have to remember that the author has not space at his disposal in which to give his reasons. We cannot agree with the advice to extract the fetal head between the pains. If the pains are so violent as to expose the perineum to risk of rupture, it is better to keep the head back, that the perineum may be gradually stretched by more than one pain.

[2] *Midwifery for Nurses*, by Henry Russell Andrews, M.D., B.S.Lond., M.R.C.P.Lond., Assistant Obstetric Physician to the London Hospital, Examiner to the Central Midwives Board. With illustrations. London: Edward Arnold. 1906. (Crown 8vo, pp. 308. 4s. 6d.)

[3] *Lectures on Midwifery for Midwives*. By A. B. Calder, M.B., M.R.C.S., Lecturer on Midwifery to the London County Council, to St. Mary's Midwifery Training School, Fulham, etc. London: Baillière, Tindall and Cox. 1906. (Demy 8vo, pp. 274. 5s.)

[4] *A Handbook for Midwives and Maternity Nurses*. By Comyns Berkeley, B.A., M.B., B.C.Cantab., M.R.C.P.Lond., Assistant Obstetric Physician to the Middlesex Hospital, Lecturer on Midwifery at the Middlesex Hospital Medical School, etc. London: Cassell and Co. 1906. (Fcap. 8vo, pp. 283. 5s.)

Dr. VICTOR BONNEY has prepared a *Series of Midwifery Diagrams*[5] (160 in number) designed to assist especially in the teaching of pupil midwives, whose lack of anatomical and physiological knowledge makes the help of diagrams, in his experience, almost indispensable. The diagrams have been drawn by Mr. F. G. Lewin, from Dr. Bonney's instructions. They are frankly diagrammatic; they make no pretence at being true to nature; they are to illustrate, not to represent. They are not copies, although the author as to some of them says that they have been "suggested by" the authors of illustrated books previously published. In some of these instances the author has not traced back the suggestion to its original source. Thus Figs. 75 and 96 are said to have been "suggested by Herman"; but reference to that author's work on *Difficult Labour* reveals that he gives the credit of them to Robert Barnes. Fig. 131 is said to have been "suggested by Edgar"; but we believe the method depicted was first recommended and figured by Herman in his *First Lines in Midwifery*. The author claims to have supplied a complete pictorial course, and this he certainly has done. His diagrams are too many rather than too few. We do not see that the diagrams of mammary abscess and of phlegmasia dolens help very much; all they show is a big breast and a big leg. It is interesting rather than useful to show midwives a picture of the organisms that cause puerperal fever, including the gonococcus. We congratulate Dr. Bonney on the completion of his self-imposed task, and hope he will now feel himself free to turn his ability to more ambitious aims.

CHEMISTRY.

READERS of the *Cornhill Magazine* will have no hesitation in according a hearty welcome to Mr. SHENSTONE'S[6] collection, under the title *The New Physics and Chemistry*, of the scientific essays which he contributed recently to the pages of that periodical. The author is to be congratulated alike on the skill with which he divests the most technical subjects of their technicality and on the widely-divergent aspects of scientific work which he has selected for comment. He has discussed the methods employed for the weighing of a world and of an atom; he has dealt with the modern conceptions of light and of the ether, and explains current suggestions about the constitution of matter; nor has he recoiled from the difficulties which lie on the borderland of biology and chemistry. It is perhaps superfluous to add that the volume contains more than one essay on the nature of the radio-active bodies and the problems to which their behaviour has given prominence. In his essay on "the origin of life," Mr. Shenstone has corrected a very widespread error which attributes the mass of the work in this connexion to Pasteur. Without in any way belittling the value of Pasteur's researches, he has pointed out that it was Francesco Redi who first devised experiments to disprove the wild statements current in Van Helmont's day, as that the gases of marshes "produce frogs, slugs, leeches, grasses, and other things," that corn may readily be transmuted into mice, and the like. By his admirable presentation of these theories, which are of vital interest at the moment, Mr. Shenstone should secure a wider audience than that to which his preface appeals. Even the working chemist is not always averse to getting away from the technical. The essays should appeal with especial force to all those who have received a scientific education and who for various causes are unable to follow the later developments in all their details. The statement of the results achieved and the indication of the methods which have made them possible will satisfy a long-felt want.

In publishing his *Principles of Qualitative Analysis* (Leipzig, 1902) Dr. BÖTTGER[7] supplied the want which Dr. Ostwald deplored in his preface to the *Scientific Foundations of Analytical Chemistry*. His object was to demonstrate that the work undertaken by the analyst was not only in harmony with the more advanced theories of ionization, but that it was only intelligible when viewed from that standpoint. He insisted on the importance of keeping electrolytic dissociation continually before the student from the earliest stages, and devoted considerable space to emphasizing this view. The translation by Mr. SMEATON remains consistent with the original. Apart from the able manner in which the author has dealt with the ionic theory, we would draw especial attention to the incorporated essays on Reversible Reactions, on Oxidation and Reduction, and on many other kindred subjects, which are too often referred to in books of this sort without the necessary explanations. We cannot help thinking that the author is optimistic in his belief that the beginner will be able to understand and appreciate his work; it seems to us rather to be valuable as a minor book of reference to those who have some knowledge of the phenomena which Dr. Böttger describes. Mr. Smeaton's translation, more than satisfactory in other respects, suffers from the quite unreasonable number of italics which he has seen fit to introduce. But is it he or the author who is responsible for the curiously-worded footnote on page 206: "Potassium cyanide is sometimes used as an active reducing agent. Caution! Hood!"?

[5] *A Series of Midwifery Diagrams.* By Victor Bonney, M.D., M.S., B.Sc., F.R.C.S., Lecturer on Practical Midwifery at the Middlesex Hospital. Bristol: J. Wright and Co. 1906. (42s. per set.)

[6] *The New Physics and Chemistry, a Series of Popular Essays on Physical and Chemical Subjects.* By W. A. Shenstone, F.R.S. London: Smith, Elder, and Co. 1906. (Demy 8vo, pp. 360. 7s. 6d.)

[7] *The Principles of Qualitative Analysis.* From the Standpoint of the Theory of Electrolytic Dissociation and the Law of Mass Action. By William Böttger, Privat-docent in the University of Leipzig. Translated, with the author's sanction and revised with his co-operation, by William Gabb Smeaton, Instructor in General Chemistry in the University of Michigan. London: Rebman and Co. 1906. (Demy 8vo, pp. 300. 9s.)

NOTES ON BOOKS.

THE illustrations of *Spemann's Historischer Medicinal-Kalendar for 1907*,[8] the third year of issue, have been renewed and the text revised by the compilers, Dr. J. PAGEL, Professor of the History of Medicine in the University of Berlin, and Dr. J. SCHWALBE, editor of the *Deutsche medizinische Wochenschrift*. The idea is most excellent and well carried out; two days are given on each page, the dates being printed in bold type at the bottom of the leaf, while at the top is a picture, usually the portrait of a medical celebrity, but occasionally the reproduction of a subject picture. In the intervening space are notes consisting for the most part of biographical sketches of one or more persons who died or were born on that day of the month. The compilers have been cosmopolitan in their selection of famous men, and any one who will hang the calendar on his wall and look at it every day will pick up a good deal of historical knowledge during the year. But if the calendar is to achieve the popularity it deserves there is one suggestion which Dr. Schwalbe should consider, and that is to print the text in Roman instead of Gothic type. The type chosen is rather small, the calendar hanging vertically is not very well lighted, and the print is only just within the range of normal vision; to persons not habituated to reading Gothic type the difficulty is increased. We admit that the type is artistic, but it is a pity to sacrifice utility to the picturesque.

In a pamphlet on the *Saprophytic Theory of Cancer*,[9] Mr. G. CAMPBELL MURRAY argues that the geographical distribution of cancer is such that suspicion readily fastens itself upon the burial grounds. Senile decay marks the time when cancer is most prevalent in the body, and organic decay marks the place in our surroundings where cancer is most prevalent. These observations, taken together, are regarded as providing a strong indication that cancer is due to a saprophyte. The author is much impressed by the resemblances pointed out by various writers between cancer and the "finger-and-toe" disease of plants, and thinks that the cancer organism is present in the soil, is conveyed by the soil and water, and is probably a protozoon.

The third volume of *The Ophthalmic Year Book*[10] contains a digest of the literature of ophthalmology, with index of publications for the year 1905. The editors are Dr. EDWARD JACKSON of Colorado and Dr. DE SCHWEINITZ of Philadelphia. Considering the enormous ground it covers,

[8] Berlin: Spemann. Price M. 2.

[9] *The Saprophytic Theory of Cancer.* By G. Campbell Murray, L.R.C.P., L.R.C.S. Edinburgh: Lorimer and Chalmers. (Fcap. 8vo, pp. 55.)

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